Effectiveness of Dry Needling on Upper Trapezitis Patient Compared to Ultrasound Therapy

Arthi.K ¹, Muthukumaran Jothilingam²

¹Undergraduate, ²Professor, Saveetha college of Physiotherapy, Saveetha Institute of Medical and Technical Sciences, chennai, Tamil Nadu, India.

How to cite this article: Arthi.K, Muthukumaran Jothilingam. Effectiveness of Dry Needling on Upper Trapezitis Patient Compared to Ultrasound Therapy. Indian Journal of Physiotherapy and Occupational Therapy / Volume 18, Year 2024.

Abstract

Background: This study was designed to inspect the effectiveness of Dry Needling on Upper Trapezitis patient compared to Ultrasound Therapy

Purpose: To compare the effectiveness of dry needling on upper trapezitis patients compared to ultrasound therapy.

Materials and Methods: Fifty participants were divided into a couple of categories: Group A received dry needling twice a week, while Group B received ultrasound therapy four times a week for two weeks. Stretching and strengthening exercises were given to all groups. Participants were evaluated using the Pain Rating Scale (NPRS), cervical lateral flexion range of motion, and cervical rotation range of motion at two intervals (before and after treatment). Study period: November 2022 to April 2023

Result: According to the statistical evaluation, there was a significant within-group improvement for NPRS and CROM (Lateral Flexion and Cervical Rotation) before and after therapy for both Groups A and B, with a p value of 0.0001. With a higher effectiveness for DRY NEEDLING in lowering discomfort and enhancing ROM, the between-group evaluation is statistically significant with p<0.0001 for NPRS and p<0.0001 for CROM (lateral flexion and cervical rotation).

Conclusion: Dry needling is more effective than ultrasound therapy in upper trapezitis.

Keywords: Upper trapezitis, Dry Needling, Ultrasound therapy, NPRS, CROM (Lateral flexion and rotation).

Introduction

The trapezius is one of the two main underlying muscle groups, expanding laterally to the scapular spine and longitudinally through the occipital bone into the lower thoracic vertebrae. The muscle that attaches to the C7-T12 vertebral spinous processes, the external occipital protuberance, the nuchal ligament, and the medial portion of the superior nuchal line is its origin. The muscle is attached to the acromion, the scapular spine, and the lateral portion of the clavicle¹.

Trapezitis, an inflammation of the trapezius muscle, includes myofascial pain syndrome. Muscle spasm occurs shortly after inflammation.

Corresponding Author: Muthukumaran Jothilingam, M.P.T, Ph.D., Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu.

E-Mail: muthukumaranjothilingam3@gmail.com
It occasionally hurts and feels like your muscles are tense. In the event that the underlying injury is left untreated, spasm results in the development of trigger points, which are muscle knots.

In addition to underlying disorders, there are other reasons for neck pain. Enduring constant tension, worry, sleeping incorrectly, or donning heavy jewellery. Trapezius pain is extremely common due to excessive use.

An invasive other option for reducing pain and trigger points in tense muscles is dry needling. When the trigger point is inserted using a plastic guide and a sterilised needle at various angles, such as 30 degrees and 45 degrees. The use of dry needles increases range of motion and lessens pain.

When it affects the epidermis, fascia, and tendon, an inward insertion of the needle provides a more potent analgesic effect than one that only penetrates the skin and superficial muscles.

MTP inhibition, therapeutic stimulation of MTPs improvement, muscle distribution reduction, removal of the source of muscle discomfort, return to usual peripheral nerve stimulation, promotion of self-treatment of damaged tissues, and reduction of automatic movement of muscles are some of the objectives of DN.

Ultrasound treatment (US) is a pain-relieving non-invasive method. It provides strength to the tissues via mechanical vibrations, which are higher frequency sound waves. US is a well-known safe, non-invasive, and cost-effective treatment. The physiological impacts of the US depend on its frequency and severity. When intensity is between 0.5 and 0.7 W/cm2, it has been shown to promote soft tissue flexibility and reduce discomfort. How much US is absorbed in tissues depends on the applied US frequency, which can increase cell temperature from 34.3°C to 37.3°C when utilised in Continuous mode at 3MHz.

Although the relaxing impacts of ultrasound on brain regions are thermal effects increase tissue flexibility, lessen pain, accelerate metabolism, and enhance blood flow depth.

Piezoelectric crystals, which are used to make ultrasound probes, use high-frequency, alternating voltages to transform electrical impulses into mechanical vibration motion. A detector or applicator in close proximity to the patient’s skin produces this kind of motion.

Trouble sleeping, paraesthesia, tiredness in the upper extremities, restricted range of motion, and paraesthesia are just a few of the signs and symptoms of neck discomfort. The upper trapezius, which is most frequently shortened, is distinguished by a decrease in the range of motion (ROM) for lateral flexion with rotation. With therapy US on the UT, muscle rigidity was reduced and the active movement was increased.

Aim

To compare the effectiveness of dry needling and ultrasound therapy on upper trapezius patient

Materials and Methods

50 patients with upper trapezius, ranging in age from 25 to 45, were the subjects of an experimental study conducted by Dr. Milton Physiocare. The study’s sampling strategy was accessible. Study period: November 2022 to April 2023.

Inclusion criteria:
- Subjects must be around the ages of 25 and 45 and have cervical and upper trapezius ache.
- Subjects willing to participate in the study.
- Cervical range of motion is restricted

Exclusion criteria:
- The individual’s cervical surgical experience.
- Spinal pathology is eliminated if the NPRS scale is greater than 8.
- A previous cervical fracture.

Outcome measures

Assessments were done at the beginning (before the start of intervention) and two weeks later.
- Numeric Pain Rating Scale (NPRS)
- Cervical Range of Motion (lateral flexion and rotation)

Procedure

Individuals were chosen based on inclusion and exclusion criteria. The method was described...
to the individuals, and they were then requested to sign the permission document. Each participant was evaluated using the evaluation form. Individuals were randomly assigned into a pair of groups, A and B. The evaluation was done at the start of the trial and again after two weeks.

**Group A: Dry Needling**

Patient positioned in chair, hands on table, head leaning on hands

Therapist approaching the individual’s affected side from back.

Technique: A 0.30mm diameter and 50mm length acupuncture sterilised needle is utilised to adequately expose the treatment area. Dry needling involves cleansing the region being treated with spirit, palpating any nodules, then positioning a fine needle and plastic guide tube over a myofascial trigger point and tapping to cause a twitch response. When a needle was placed into a trigger point penetrated at a 30 degree angle, the fanning technique was used, and the needle was held for a few seconds before being effectively taken out. Use a Cold pack for 10 minutes twice daily after the procedure to decrease post-needling discomfort.

**Group B: Ultrasound Therapy**

The patient was instructed to properly bend forward while seated in a chair with support as well. His head and arms were supported by a pillow. The trapezial trigger sites get ultrasound treatment four times per week for the following two weeks.

Protocol for Treatment: The final test will be given two weeks following the intervention at a frequency of 3 MHZ with an intensity of 1.0 W cm2 for an overall of 10 minutes.

**Exercise Program:**

(10 Repetition, 3 Sets, 10 sec hold)

- Upper trapezius stretch
- Shoulder shrugs
- Shoulder blade squeeze

**Isometric Exercise:**

- Neck flexion
- Neck extension

**Data analysis**

![Comparison between pre test and post test values of NPRS in dry needling](image)

**Fig - 1: Group A Paired T-Test By Using Nprs (Dry Needling)**

![Comparison between pre test and post test values of cervical lateral flexion ROM in dry needling](image)

**Fig - 2: Group A Paired T-Test By Using Cervical Lateral Flexion Rom (Dry Needling)**

![Comparison between pre test and post test values of cervical rotation ROM in dry needling](image)

**Fig - 3: Group A Paired T-Test By Using Cervical Rotation Rotation (Dry Needling)**
Result

50 individuals participated in the study. There were 25 participants total in each group.
For NPRS, the mean was 7.49 for Group A (Dry Needling) and 8.47 for Group B (Ultrasound), p value was <0.0001 and t value was =8.9641 demonstrating that the outcome was statistically significant.

For CERVICAL LATERAL FLEXION ROM, the mean was 7.56 for Group A (Dry Needling) and 4.04 for Group B (Ultrasound), p value was <0.0001 and t value was =17.5125 demonstrating the result was statistically significant.

For CERVICAL ROTATION ROM, the mean was 13.20 for Group A (Dry Needling) and 8.96 for Group B (Ultrasound), p value was <0.0001 and t value was =5.4515 demonstrating that the result was statistically significant.

Discussion

This study compares the effectiveness of ultrasonic therapy with dry needling for treating upper trapezitis in patients. Additionally, the impact on pain management and neck range of motion will be assessed. Over the course of two weeks, this contrast is displayed.

In the present study, 50 participants were divided into a pair of 25 each: group A underwent dry needling twice per week, and group B received ultrasound four times per week for two weeks.

The same workout programme was given to each of these groups. Prior to and after therapy, results were evaluated using the NPRS scale, cervical lateral flexion range of motion, and cervical rotation range of motion. The significant benefits of dry needling are higher than those of ultrasound therapy by a significant amount. dry needling group were superior to the ultrasound group when results were compared between each of the two groups.

The data analysis shows that both groups had greater NPRS, Cervical Lateral Flexion ROM, and Cervical Rotation ROM levels. In contrast, with regard to of NPRS, Cervical lateral flexion ROM, and Cervical rotation ROM, individuals in the dry needling groups outperformed those in the ultrasound group. An early study by Maithili Deshpande, et al., (2023) Conclusion: Depending on data, each dry needling and percussor are successful at decreasing discomfort; meanwhile, in a medical condition, precursor acts superior with the goal of minimising discomfort while improving individuality.

An early study by Chien-Tsung et al., (2010) stated that the study’s findings supported the efficacy of dry needling when used remotely. Dry needling a faraway myofascial trigger point may lessen the irritability of a proximal myofascial trigger point.

An early study by Jay Shah et al., (2015) determined that dry needling changes the MTrP state and reduces discomfort. When trigger point status improves, there is a statistically significant and clinically major decrease in discomfort.

An early study by Asefeh Sedighi, et al., (2017) determined that patients with cervicogenic headache significantly improve the trigger point sensation, ROM after receiving dry needling into the sub occipital and upper trapezius muscles.

An early study by Mayur A Ajmera, et al., (2018) determined that individual with trapezitis, dry needling, and equipment supported soft tissue mobilization are higher in decreasing discomfort, effective ROM, raising decrease disability, findings of the study goes with results of M Priyanka, TG Tilak Francis et al., (2017) determined that dry needling therapy is more superior than cryotherapy for relieving pain in the upper trapezius muscle because it results in a minimize in range of pain and an greater in ROM.

Conclusion

Finding of this study concludes that through Upper trapezitis pain decreases by both dry needling and ultrasound therapy, In patients with upper trapezitis, dry needling therapy looks to be more successful than ultrasound therapy in relieving discomfort and enhancing cervical range of motion.

Ethical Clearance: Taken from institutional ethical committee. ISRB number -03/ 012/ 2022/ ISRB/ SR / SCPT

Funding: Self

Conflict of Interest: Nil

References

1. Jothilingam M, Sarniya S, Alagesan J. Comparison of Ultra Sound Therapy & Transcutaneous Electrical


